URBAN WATER CONSERVATION CAPITAL OUTLAY GRANT PROGRAM

WOFFORD HEIGHTS PARK WATER EFFICIENCY PROJECT

Submitted by

KERN COUNTY
PARKS AND RECREATION DEPARTMENT

March 1, 2002

Application Number	Application for (a-urban, b-agriculture, c-DWR/WUE:
109	a) Prop 13 Urban Water Conservation

Principle Applicant(Organization/Affiliation)

Kern County Parks and Recreation

Project Title

Wofford Heights Park Water Efficiency Project

First Name-Authorized	Last Name (AA):	Title
Robert D.	Addison	Director

Street Address	PO Box
1110 Golden State Avenue	
City	State
Bakersfield	CA
Zip Code	Telephone Number(Include Area Code)
93301	(661) 868-7000
Fax Number (Include Area Code)	E-mail Address
(661) 868-7001	

First Name-Contact Per	Last Name-CP:	Contact-Title
James	Parker	Planner

Contact-Street Address	Contact-PO Box
1110 Golden State Avenue	
Contact-City	Contact-State
Bakersfield	CA
Contact-Zip Code	Contact-Phone Number
93301	(661) 868-7020
Contact-Fax Number	Contact-E-Mail Address
(661) 868-7001	parkerj@co.kern.ca.us

Funds Requested (dollar amount	Applicant Funds Pledged (dollar amount	Total Project Costs (dollar amou
$84,910.00	$7,200.00	$92,110.00

Estimated Total Quantifiable Project Benefits (dollar amount	Percentage of Benefits to be Accrued by App
$114,699.21	1
Percentage of Benefits to be Accrued by CALFED or othe	Estimated Annual Water to be Saved (acre-fe
1	2.79
Estimated Total Amount of Water to be Saved (acre-fee	Over _____ Number of Years
41.85	15

Estimated Benefits to be Realized (terms of water qual,instream

Duration of Project (month/year-month/year):	State-Wide
10/02-09/03	☐

State Assembly District-location of project(	32	State Senate District-location of project(1	14
State Assembly District-location of project(		State Senate District-location of project(2	
State Assembly District-location of project(		State Senate District-location of project(3	
State Assembly District-location of project(		State Senate District-location of project(4	
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State Assembly District-location of project(		State Senate District-location of project(9	
State Assembly District-location of project(		State Senate District-location of project(10	

Congressional District(s)-location of project	21	Congressional District(s)-location of project(	
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County-location of project	Most recent Urban Water Mgt Plan Submitt
Kern	

Type Applicant-Urban(a)Agricl Feas Study(b) Gra	DWR WUE Projects	Project Focus
b) County		b) Urban

Project Type:

d) other- specify

Quantifable Objectives

Specify from choice (d) above
Water Efficiency Project

Specify from (k) above

Does Proposal involve change in land use (planned/future)ICheck box if yes
☐

PROJECT SUMMARY

The Kern County Parks and Recreation Department is requesting $84,910 from the California Department of Water Resources, URBAN WATER CONSERVATION CAPITAL OUTLAY GRANT PROGRAM, as part of a comprehensive strategy to fund the Wofford Heights Park Water Efficiency Project. The project will provide for complete renovation of the park's irrigation system thus reducing the annual water use and other related costs.

Wofford Heights Park is located on the northwestern shore of Lake Isabella in the Kern River Valley, about 50 miles northeast of Bakersfield (see Exhibit "A", Location Map). The Kern County Parks and Recreation Department, with assistance from the Wofford Heights Improvement Group (a group of local residents formed to provide community improvements) developed the neighborhood park in 1971. According to the 2000 U. S. Census, 2,276 residents live in the community of Wofford Heights. Many residents take advantage of the recreational opportunities offered at this quaint lakeside park.

The park provides a variety of recreational facilities that include picnic tables and barbeques, a children's playground (slated for renovation), and a basketball court. During certain times of the year, fishermen are able to cast from the edge of the park into Lake Isabella and birdwatchers enjoy the many species of birds that reside in the park.

The park's manual quick-coupler irrigation system results in irrecoverable water losses and requires labor-intensive operation, which makes the park expensive to operate (see Exhibit "B", Quick-coupler sprinklers). The antiquated system also diminishes the park's availability due to the required daytime irrigating operation.

Data compiled from California Water Service Company monthly statements for the Wofford Heights Park for the year 2001, show that the water used for irrigation was 1,813,152 gallons or 5.56 acre feet at a cost of $4,917.

The labor costs for the manual operation of the quick-coupler irrigation system are estimated at $7,523 for the same period of time.

Month - 2001	**Water Volume**	**Water Costs**
January	26,180	$ 75.89
February	37,400	$ 108.02
March	0 (carried over)	$ .00
April	182,512	$ 505.79
May	184,756	$ 479.06
June	0 (carried over)	$ .00
July	284,988	$ 758.81
August	418,132	$1,121.08
September	263,296	$ 702.16
October	255,816	$ 682.63
November	0 (carried over)	$ .00
December	160,072	$ 465.81
Totals	**1,813,152 gals**	**$4,917.25**

The cost associated with the diminished availability of the park due to the long inefficient irrigation schedule is not quantifiable, but is recognized by Wofford Heights residents.

The Kern County Parks and Recreation Department proposes to design and install a fully digital irrigation system at the Wofford Heights Park, as it has done successfully at other locations within the Kern County parks system. The proposed system will be designed by a licensed civil engineer and is projected to reduce water use by more than half, a savings of 2.79 acre feet at an annual cost of $2,467, eliminate 390 hours of labor, for an annual cost savings of $7,523, and provide full accessibility to the park. Annual cost savings projected upon completion of the Wofford Heights Park Water Efficiency Project is $9,990.

Grant funds requested will be dedicated exclusively to the irrigation system including design, engineering, materials, and construction in the amount of $84,910. The Kern County Parks and Recreation Department will contribute all computer software and hardware, and communications equipment necessary to complete the project in the form of a cash match of $7,200. Total cost of the project is $ 92,110 (see Exhibit "C" Budget).

SCOPE OF WORK: RELEVANCE AND IMPORTANCE

The Kern County Parks and Recreation Department recognizes that a reliable water supply is critical to sustaining California's future economic and environmental health. Diminished budgetary resources have increased the importance of operational efficiency measures. Increasing efficiency enables the Kern County Parks and Recreation Department to maintain a variety of recreation opportunities for Kern County residents.

The Wofford Heights Park Water Efficiency Project is essential in reducing the volume of water used at this small neighborhood park and will aid in meeting the State's objective of reducing the current water use to meet future water demands. Elimination of the labor-intensive manual quick-coupler irrigation system will reduce the amount of water used and reduce the staff time required to irrigate the park.

Nature of Project

The Wofford Heights Park Water Efficiency Project consists of the total replacement of the manual irrigation system in favor of a modern computerized system, thus reducing the neighborhood park's overall water and labor expenses by more than half.

The 30-year-old antiquated quick-coupler irrigation system has been found to waste more than two and a half acre feet of water per year and requires over 390 staff hours annually to operate. In addition, portions of the park are unavailable for public use during daytime irrigation.

The proposed project is consistent with the mission of the California Water Resources Control Board, "… to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations." Also, the project will continue the Kern County Parks and Recreation Department's efforts to provide open spaces and recreational opportunities to the residents of Kern County in an efficient and affordable manner.

The proposed irrigation system will be operated from a remote location and will require no on-site

operations. The system adjusts the irrigation schedule and water quantity by allowing for changes in temperature and moisture. The computerized irrigation system will provide advanced automated irrigation designed to meet today's increased conservation needs. The system will yield cost savings and maximize efficiency in the use of human and energy resources. The computer will react to irrigation system failures and alert park staff to necessary repair or maintenance issues (see Exhibit "D", Preliminary Plan).

Objective

The objective of the Wofford Heights Park Water Efficiency Project is to reduce irrecoverable water losses, improve the park system, and enhance the residents' recreational opportunities. Year 2001 calculations are provided for the existing manual system and the proposed computerized irrigation systems showing the estimated volume of water used according to the sprinkler manufacturer's specifications (see Exhibit "E").

Goals

1. The first goal of the Wofford Heights Park Water Efficiency Project, and most important, is to reduce annual water use by more than half.

2. Eliminate an estimated 390 hours of labor expended currently on the manual irrigation system freeing the parks staff to perform necessary duties elsewhere within the park system.

3. Decrease maintenance costs by operating the irrigation system at full optimum capacity, decreasing the frequency of replacement of sprinkler valves and associated equipment. Remote monitoring will allow maintenance staff to respond to system failures before excessive water loss and damage to the park's landscaping is experienced.

4. Increase park availability for residents with after-hours irrigation. Currently, the park is irrigated approximately 156 days per year, seven hours per day, denying the residents access to some portion of the park during watering.

5. Reduce the impact on the community's water pressure. Currently, residents close to the park may experience a reduction in water pressure when the quick-coupler sprinklers are operated during the daylight hours.

SCOPE OF WORK: Technical/Scientific Merit, Feasibility, Monitoring and Assessment

Methods

Manual verses computerized irrigation systems is an undeniable sound water and parks management process. The computerized irrigation system translates into a water conservation and labor saving management system.

1. Replace quick-coupler manual irrigation system with new automated water efficient sprinkler

heads.
2. Install onsite sensors and digital equipment to remotely operate irrigation system.
3. Monitor watering and develop efficient irrigation regimen.
4. Re-deploy groundskeeper staff to other duties.

Schedule

In May 2002, Kern County Parks and Recreation Department will provide: 1) a matching funds commitment letter, 2) a resolution from the Kern County Board of Supervisors, and 3) environmental compliance documentation.

In October 2002, upon receipt of an executed contract between the California Department of Water Resources and the County of Kern, the project will commence. It is anticipated that the project will be completed no later than October 2003.

Initial plans and specifications have been developed and final plans will be drafted upon award. The following is an approximate work and corresponding expenditure schedule for successful completion of the project:

October - December 2002	Cost	Cash Match
1. Planning/Design/Engineering	$ 8,100	
?? Final plans and specifications approved		
2. Survey/Testing/Permits	$ 0	
?? Permit application (initial)		
3. Project/Legal/License Fees	$ 2,500	
4. Construction/Administration/Overhead	$ 1,000	
?? Request for Proposal Developed		
5. Environmental	$ 1,200	
?? CEQA Process		

January -March 2003

1. Construction/Administration/Overhead	$ 1,000		
?? Request For Proposal Issued			
?? Bids received			

April - June 2003

1. Construction/Administration/Overhead		$ 1,000	
?? Contractor awarded			
2. Survey/Testing/Permits	$ 700		
?? Permit Application (final)			

July-September 2003

1. Construction/Administration/Overhead	$ 5,500		
?? Construction commences			
2. Materials/Installation		$54,641	$ 7,200
3. Escalation 6%		$ 3,685	
Subtotal Costs		$79,326	
Contingency 10%		$ 5,584	
Total Estimated Costs		$84,910	$ 7,200

Monitoring/Assessment

The Kern County Construction Services Division will provide a licensed civil engineer to provide the final design specifications, engineering, and to monitor construction of the project. Additionally, Construction Services Division personnel will be available to answer any design and engineering questions and will facilitate the bid and construction process.

Plans and Specifications

A licensed civil engineer employed by the Kern County Construction Services Division has provided preliminary plans and specifications.

QUALIFICATIONS OF APPLICANT

The Kern County Parks and Recreation Department was established in 1952, to provide parks, open space, and recreational opportunities for Kern County's residents. The Department's director, appointed by the Kern County Board of Supervisors, and its 118 employees manage eight regional parks, 41 neighborhood and community parks, 83 landscaped areas, and 27 community buildings. Parks are located in mountain, valley, and desert communities, providing recreational opportunities to all 661,645 Kern County residents.

Project Manager

James Parker, Park Planner, has been designated as project manager for the Wofford Heights Park Water Efficiency Project (see Exhibit "F", Resume).

COSTS AND BENEFITS

The Wofford Heights Park Water Efficiency Project will consist of the installation of an underground irrigation system to cover 72,300.0 square feet of turf. The system will be connected to the existing utility panel where a telephone line will link the irrigation system to a computer located in the administration office of the Kern County Parks and Recreation Department in Bakersfield. The MAXICOM computer program is a landscape and turf management control system. The control system will automatically operate the irrigation system assessing current weather conditions and optimum watering operation.

Grant funds requested will be dedicated exclusively to the 2-inch diameter irrigation system including design, engineering, materials, and construction in the amount of $84,910.

Cost Sharing

The Kern County Parks and Recreation Department will contribute all computer software and hardware, and communications equipment necessary to complete the project in the form of a cash match of $7,200. The cash-match will be expended to complete the project within 12 months.

Summary of Costs and Benefits

For the year 2001, the County of Kern purchased 5.56 acre-feet of water at a cost of $4,917.25 to irrigate the Wofford Heights Park. According to specifications obtained from the irrigation equipment manufacturer, replacement of the quick-coupler manual irrigation system to a fully automated computerized system will result in annual water savings of more than half, or 2.79 acre feet of water, an annual cost savings of $2,467. Labor for the same period was estimated at 390 man-hours, due to the labor-intensive manual system, at an annual cost of $7,523. Cost benefits to the County of Kern and its residents are estimated at $9,990 annually.

Public non-quantifiable benefits include increased park availability because of the after-hours irrigation capabilities, and increased stabilized water pressure for neighboring residents.

Method

The antiquated irrigation system will be replaced with a fully automated "computer smart" system to allow for efficient water and park management. The project will be completed within one year from execution of the agreement and will result in immediate cost savings of $9,990 annually. The irrigation system is projected to have a 15-year life for a total lifetime savings to the County of Kern and its residents of $114, 699.21. Local cost benefit equals B/C≥ 1.
B= $114,699.21
C= $ 92,110.00
≥= 1.245

Quantifiable Benefits

Project Benefits	Applicant <Savings>	Kern County Residents <Savings>	CALFED Solution Area
1) Decreased Water Use	$ 2,500	$ 2,500	2.79 Acre Feet Water Savings
2) Decreased Labor Costs	$7,500	$7,500	

Non-Quantifiable Benefits

Project Benefits	Applicant	Kern County Residents	CALFED Solution Area
3) Decreased Water Use	Improved Water Management	Efficient Use of Tax Dollars	Improved Water Management
4) Decreased Labor Costs	Efficient Use of Labor	Efficient Use of Tax Dollars	
5) Decreased maintenance costs	Efficient Use of Labor and Materials	Efficient Use of Tax Dollars	
6) Increased Park Availability (After-hours watering)	Satisfies Applicant's Mission	Provides additional recreational opportunities	
7) Increased Neighborhood Water Pressure (After-hours watering)	Reduces negative impact on community residents	Stabilizes daily water pressure for community residents	

Assessment of Costs and Benefits

1) Decreased water use will be immediate upon the conversion to the computerized irrigation system from the manual quick-coupler system.

2) Installation of the computerized irrigation system requiring no daily operation will result in labor savings. This substantial savings of labor can be redirected to other high priority projects within the County's park system.

3) Reduction in water use will result in improved water management and additional positive fiscal impact on the residents of Kern County while meeting the CALFED Mission Statement, "…..improve water management for beneficial uses….".

4) Efficient use of labor will allow redistribution of labor efforts to other projects.

5) Efficient use will reduce unnecessary wear and tear on irrigation system. Appropriate watering

will result in healthier landscaping and turf, eliminating the need for replacement of over or under-watered plants or grass.

6) After-hours watering allows residents to use the park during all daylight hours and conforms to the Kern County Parks and Recreation Department's mission, "...provide recreational opportunities to residents…".

7) After-hours watering will not impact the community water pressure during peak daylight hours.

OUTREACH, COMMUNITY INVOLVEMENT AND ACCEPTANCE

The Kern River Valley Chamber of Commerce and the California Water Service Company have expressed their interest and support for the Wofford Heights Park Water Efficiency Project (see Exhibit "G" Letter of Support). Recently, a local radio station discussed the possibility of improvements to the park's irrigation system and received several telephone calls from residents in favor of the project.

EXHIBIT "A" LOCATION MAP

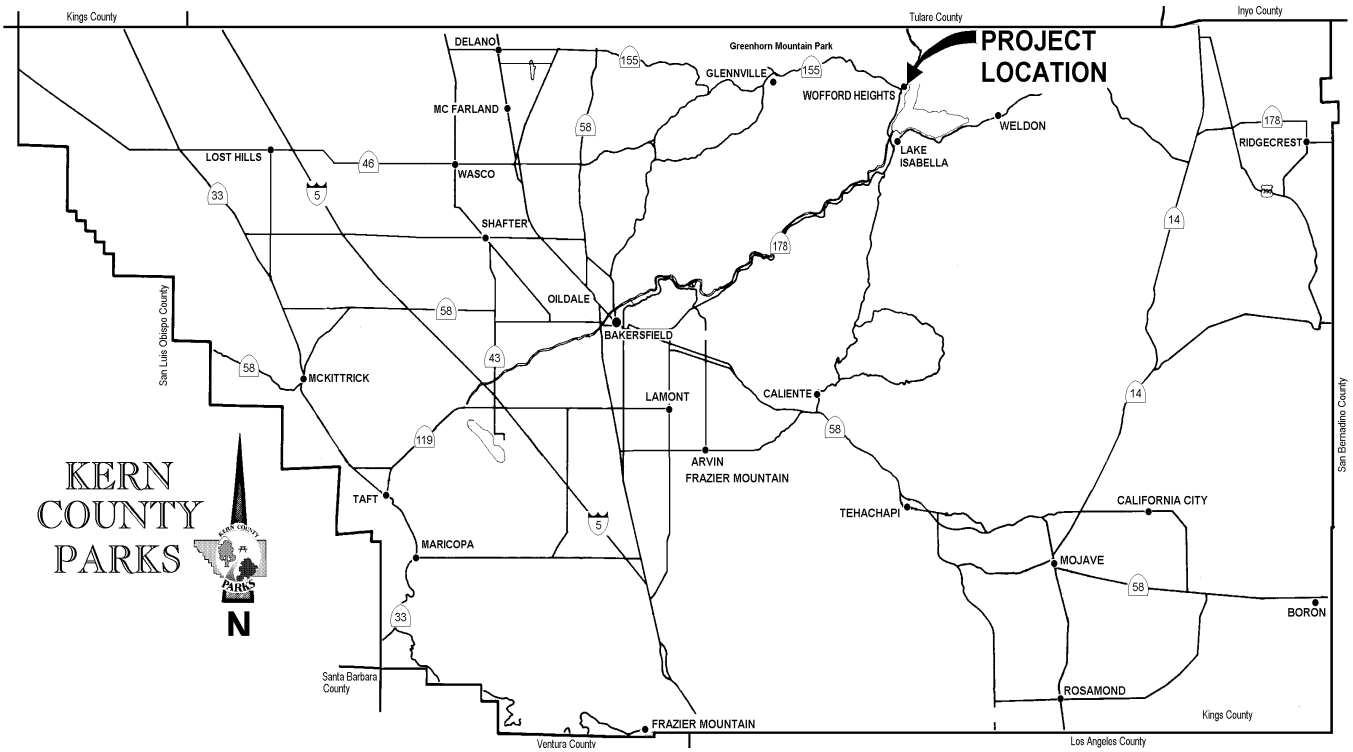

Exhibit "B" **QUICK-COUPLER SPRINKLER OPERATIONS**

WOFFORD HEIGHTS PARK

Exhibit "C" Budget Cost Estimate

Item Number	Quantity	Units of Measure	Item	Grant Funds Requested	Cash Match
			Materials/Installation		
1	72	MSF	Irrigation System	$48,441	
2	1	LS	2" RP Backflow Preventer	$ 1,200	
3	1	LS	Rock Removal	$ 5,000	
4	1 ea		MAXICOM- controller, flow sensor, master valve		$ 6,000
5			MAXICOM- Wiring and Computer programming install		$ 1,200
			Structures	$ 0	
			Equipment Purchase/Rentals	$ 0	
			Environmental Mitigation/Enhancement	$ 1,200	
			Subtotal	$55,841	$ 7,200
			Contingency 10%	$ 5,584	
			Escalation 6%	$ 3,685	
			Construction Total	$65,110	$ 7,200
			Planning/Design/Engineering	$ 8,100	
			Project/Legal/License Fees	$ 2,500	
			Construction/Administration/Overhead	$ 8,500	
			Survey/Testing/Permits	$ 700	
			Total Project Costs	$89,910	$ 7,200

Exhibit "D"

Preliminary Design
(This project is feasible according to accepted engineering standards.)
James D. Colt, RCE #40611

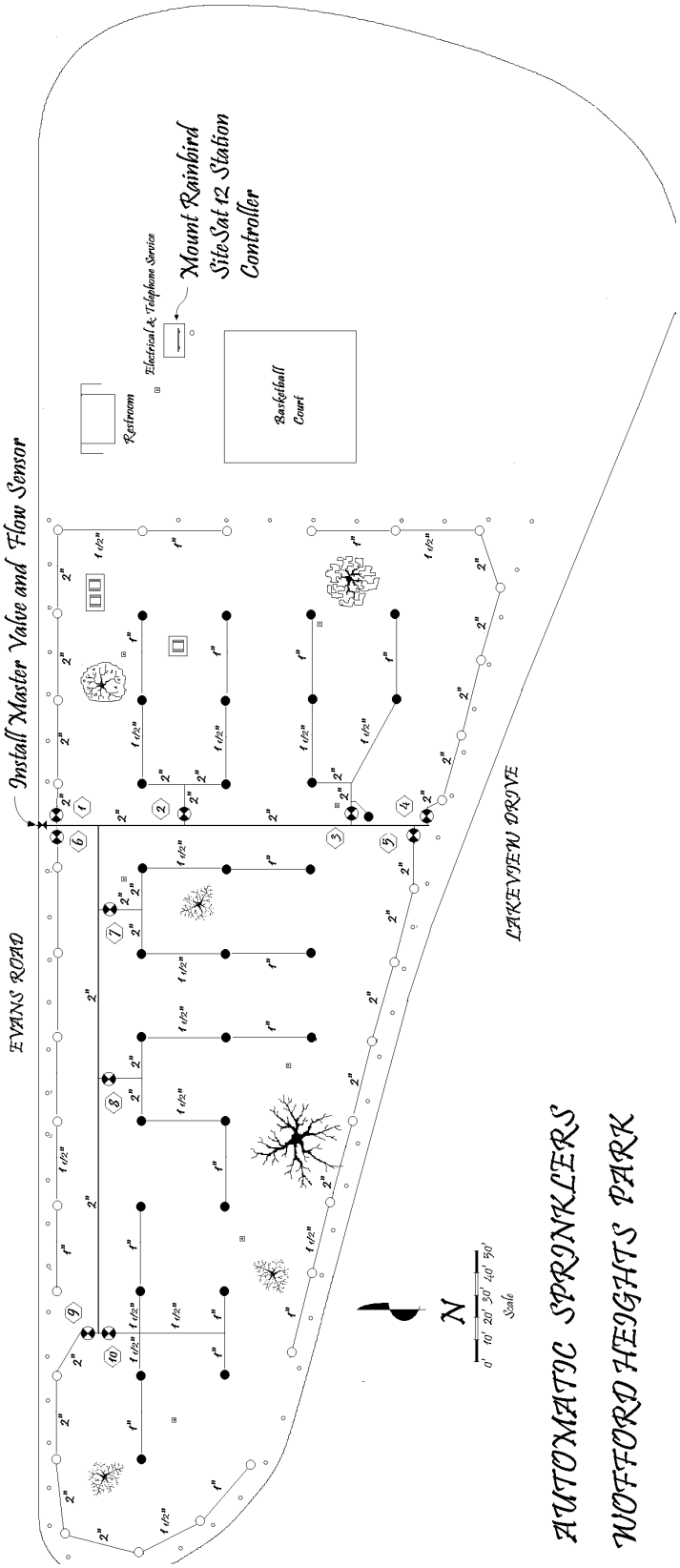

Exhibit "E"

EXISTING MANUAL IRRIGATION SYSTEM (2001 ESTIMATES)

Spacing	Rainbird 65P JAJ-TNT (14.2 gpm) Sprinkler	Precip Per Sprinkler	Total Precip Per Setting	Total gpm Per Setting	Run Time Summer Season Per Setting	Run Time Winter Season Per Setting	Summer Daily* Water Use Per Setting	Winter Daily** Water Use Per Setting
Setting 1	6	0.81	4.86	85.2	31mins	18 mins	2,641gals	1,534gals
Setting 2	6	0.81	4.86	85.2	31mins	18 mins	2,641gals	1,534gals
Setting 3	6	0.81	4.86	85.2	31mins	18 mins	2,641gals	1,534gals
Setting 4	6	0.81	4.86	85.2	31mins	18 mins	2,641gals	1,534gals
Setting 5	6	0.81	4.86	85.2	31mins	18 mins	2,641gals	1,534gals

Total Daily Gallons Per Season 13,206 7,668

Total Summer Gallons 104 Days x 13,206 1,373,424

Total Winter Gallons 52 Days x 7,668 398,736

TOTAL ESTIMATED 2001 WATER USE 1,772,160 gallons*** = 5.44 acre feet

* Summer Season = May - October (104 days)
** Winter Season = November – April (52 days)
*** 2001 Actual Water Use 1,813,152 gallons (+/- 3%)

Exhibit "E-1"

PROJECTED COMPUTERIZED IRRIGATION SYSTEM

Spacing	**Rainbird Falcon Rotor #10 (9.4 gpm)**	**Precip Per Sprinkler**	**Total Precip Per Setting**	**Total gpm Per Setting**	**Run Time Summer** Season **Per Setting**	**Run Time Winter Season Per Setting**	**Summer Daily Water Use Per Setting**	~~Winter~~ **Daily Water Use** ~~Per~~ **Setting**
Setting 1	6	0.67	4.02	56.4	15 mins	5 mins	846gals	282gals
Setting 2	6	0.67	4.02	56.4	15 mins	5 mins	846gals	282gals
Setting 3	6	0.67	4.02	56.4	15 mins	5 mins	846gals	282gals
Setting 4	7	0.67	4.69	65.8	15 mins	5 mins	987gals	329gals
Setting 5	7	0.67	4.69	65.8	15 mins	5 mins	987gals	329gals
Setting 6	6	0.67	4.02	56.4	15 mins	5 mins	846gals	282gals
Setting 7	7	0.67	4.69	65.8	15 mins	5 mins	987gals	329gals
Setting 8	6	0.67	4.02	56.4	15 mins	5 mins	846gals	282gals
Setting 9	6	0.67	4.02	56.4	15 mins	5 mins	846gals	282gals
Setting 10	6	0.67	4.02	56.4	15 mins	5 mins	846gals	282gals

Automatic System Daily Gallons Per Season **8,883** **2,961**

MAXICOM 20% Projected Water Use Reduction **<1,776gals>** **<592gals>**

~~**TOTAL DAILY GALLONS PER SEASON** **7,107** **2,369**~~

Total Summer Gallons (May-Oct)104 Days x 7,107 739,128
Total Winter Gallons (Nov-Apr) 52 Days x 2,369

123,188

TOTAL PROJECTED ANNUAL WATER USE **862,316 gallons = 2.65 acre feet**

Exhibit "F" Resume

James Parker

Park Planner II **11/26/94 to Present**

Designs and develops plans and specifications for park projects. Prepares construction contract specifications: monitors and coordinates work by private contractors, other agencies and County departments.

Certifications: MAXICOM Installation 1995
Playground Safety Inspector 1999

Park Management Technician **8/25/92 to 11/25/94**

Estimated costs and prepared budgets. Prepared reports and recommendations. Collected and analyzed data to assist in resolution of park management problems.

Maintenance Worker – Water Treatment Operator **12/12/85 to 8/24/92**

Planned and directed all activities concerned with the operation of two surface water treatment plants, including maintenance, ordering supplies, maintaining records, testing water quality, and responding to questions from public.

Certification: Water Treatment Operator Grade II 1985

Maintenance Worker II **6/19/84 to 12/11/85**

Performed building repairs involving plumbing, irrigation systems, painting, and carpentry, mechanical, structural, flooring, and/or simple electrical work. Used a variety of hand and power tools in the performance of work.

Maintenance Worker I **2/20/81 to 6/18/84**

Assisted in the installation of irrigation systems, park structures, and equipment. Performed related work as required.

Groundskeeper II **3/20/71 to 2/19/81**

Performed an assortment of park maintenance tasks, including litter removal, mowing, cleaning restrooms, trimming turf areas, pruning trees, and repairing sprinklers.

Exhibit "G" Letter of Support

CALIFORNIA WATER SERVICE COMPANY
7128 LAKE ISABELLA BOULEVARD • P.O. BOX [illegible]
LAKE ISABELLA, CA 93240 • 760. 379 5236 • • (760) 379-5100

KERN RIVER VALLEY DISTRICT

February 27, 2002

California Department of Water Resources
Office of Water Use Efficiency
Urban Water Conservation Capital Outlay Grant
1416 Ninth Street, Room 338
Sacramento, Ca. 95814

To Whom it May Concern:

I am writing to express my support for the Urban Water Conservation Capital Outlay Grant Program application submitted by the County of Kern for the Wofford Heights Park Water Efficiency Project. The project will reduce water use at the park more than half and enable the Kern County Parks and Recreation Department to redirect the labor force now committed to the parks' manual irrigation system to other maintenance duties.

The County of Kern purposes to install a fully computerized irrigation system thus reducing water use and labor costs of the neighborhood park. The new system will allow the park to be irrigated after hours which will make the park available for use during all daylight hours and increase the recreational opportunities for the residents of Wofford Heights.

Once again, I urge you to support the grant application submitted by the County of Kern for the Urban Water Conservation Capital Outlay Grant Program.

Respectfully,

Chris Whitley,
Local Manager